

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

09 Jun 2026

### The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and students' perceived cognitive load

#### Protocol summary

##### Study aim

Effectiveness of the flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills, and students' perceived cognitive load

##### Design

The clinical trial includes an experimental group and a control group, randomized in a simple way, with pre-test and post-test on 30 students.

##### Settings and conduct

The experimental group receives cognitive-based flipped classroom instruction, but the control group receives no intervention. Both the experimental group and the control group are measured twice (pre-test-post-test) separately. The performance will be performed among the students of elementary education at Farhangian University of Chabahar in 12 sessions of 90 minutes.

##### Participants/Inclusion and exclusion criteria

Commitment to continuous participation in class meetings; Studying in the continuous undergraduate course of Chabahar Farhangian University; The same year of entry of intervention and control group students

##### Intervention groups

The design of training sessions will be done in a reverse way and according to the effects of cognitive load in 12 sessions of 90 minutes. Training in the control group is done in the form of lectures. Finally, after completing the course of cognitive load questionnaires, learning self-regulation and high-level thinking will be implemented as a post-test among the subjects of the two experimental and control groups. In order to maintain the effects of the intervention, one month later, both groups will undergo a follow-up test again.

##### Main outcome variables

Learning Self-Regulation; High-Level Thinking Skills, Perceived Cognitive Load

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230911059405N1**

Registration date: **2024-01-04, 1402/10/14**

Registration timing: **prospective**

Last update: **2024-01-04, 1402/10/14**

Update count: **0**

##### Registration date

2024-01-04, 1402/10/14

##### Registrant information

##### Name

Gholamreza Sanagooi Moharrer

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 54 3113 5541

##### Email address

r.sanagoo@iauzah.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2024-02-10, 1402/11/21

##### Expected recruitment end date

2024-05-19, 1403/02/30

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

## Scientific title

The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and students' perceived cognitive load

## Public title

The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and cognitive load

## Purpose

Education/Guidance

## Inclusion/Exclusion criteria

### Inclusion criteria:

Commitment to continuous participation in class meetings Studying in the continuous undergraduate course of Farhangian University The same year of entry of intervention and control group students

### Exclusion criteria:

## Age

No age limit

## Gender

Female

## Phase

N/A

## Groups that have been masked

No information

## Sample size

Target sample size: 30

## Randomization (investigator's opinion)

Randomized

## Randomization description

Since the sample size in each group is recommended to be at least 15 people in interventional research (Delaware, 2013), in order to select the sample, 30 qualified students who volunteered to participate in the research were selected using available sampling method. They will be randomly divided into two intervention and control groups (15 people in the intervention group and 15 people in the control group).

## Blinding (investigator's opinion)

Not blinded

## Blinding description

## Placebo

Not used

## Assignment

Parallel

## Other design features

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethics Committee in Islamic Azad University Research

##### Street address

Islamic Azad University Complex, Zahedan Branch, University Street

## City

Zahedan

## Province

Sistan-va-Balouchestan

## Postal code

9816743545

## Approval date

2023-12-31, 1402/10/10

## Ethics committee reference number

IR.IAU.ZAH.REC.1402.090

## Health conditions studied

### 1

#### Description of health condition studied

Flipped classroom, cognitive load, self-regulation, higher order thinking skills

#### ICD-10 code

#### ICD-10 code description

## Primary outcomes

### 1

#### Description

Self-Regulated Learning

#### Timepoint

Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

#### Method of measurement

Self-Regulated Learning Questionnaire (MSLQ) Pintrich and DeGroot

### 2

#### Description

Higher level Thinking Skills

#### Timepoint

Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

#### Method of measurement

Questionnaire of High-Level Thinking Skills of Moharery (1398)

### 3

#### Description

Cognitive Load

#### Timepoint

Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

#### Method of measurement

PASS Cognitive Questionnaire

## Secondary outcomes

empty

## Intervention groups

## 1

### Description

Intervention group: Determining the goal, compiling the electronic content, sharing the content with the students of the educational intervention group, opening questions and answers, explanation of the example by the professor, explanation of the example by the students of the educational intervention group, conclusion

### Category

N/A

## 2

### Description

Control group: without receiving educational intervention

### Category

N/A

## Recruitment centers

## 1

### Recruitment center

#### Name of recruitment center

Farhangian University of Chabahar

#### Full name of responsible person

Asma Mollazehi

#### Street address

Imam Khomeini street

#### City

Chabahar

#### Province

Sistan-va-Balouchestan

#### Postal code

9971873455

#### Phone

+98 901 079 5624

#### Email

Mollazehi1365@gmail.com

## Sponsors / Funding sources

## 1

### Sponsor

#### Name of organization / entity

Islamic Azad University

#### Full name of responsible person

Kambiz Narmashiri

#### Street address

Islamic Azad University Complex, Zahedan Branch,  
University Street

#### City

Zahedan

#### Province

Sistan-va-Balouchestan

#### Postal code

9816743545

#### Phone

+98 54 3341 9712

#### Email

university@iauzah.ac.ir

### Grant name

### Grant code / Reference number

### Is the source of funding the same sponsor organization/entity?

Yes

### Title of funding source

Islamic Azad University

### Proportion provided by this source

100

### Public or private sector

Public

### Domestic or foreign origin

Domestic

### Category of foreign source of funding

*empty*

### Country of origin

### Type of organization providing the funding

Academic

## Person responsible for general inquiries

### Contact

#### Name of organization / entity

Islamic Azad University

#### Full name of responsible person

Asma Mollazehi

#### Position

PhD student

#### Latest degree

Ph.D.

#### Other areas of specialty/work

Psychology

#### Street address

University Street, Islamic Azad University Complex,  
Zahedan Branch, Faculty of Psychology and  
Educational Sciences

#### City

Zahedan

#### Province

Sistan-va-Balouchestan

#### Postal code

9816743545

#### Phone

+98 915 149 1448

#### Email

reza.sanagoo@gmail.com

## Person responsible for scientific inquiries

### Contact

#### Name of organization / entity

Islamic Azad University

#### Full name of responsible person

Asma Mollazehi

#### Position

PhD student

#### Latest degree

Master

#### Other areas of specialty/work

Psychology

**Street address**

Islamic Azad University Complex, Zahedan Branch,  
University Street

**City**

zahedan

**Province**

Sistan-va-Balouchestan

**Postal code**

9816743545

**Phone**

+98 901 079 5624

**Email**

mollazehi1365@gmail.com

**Person responsible for updating data****Contact****Name of organization / entity**

Islamic Azad University

**Full name of responsible person**

Asma Mollazehi

**Position**

PhD student

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Psychology

**Street address**

University Street, Islamic Azad University Complex,  
Zahedan Branch, Faculty of Psychology and  
Educational Sciences

**City**

Zahedan

**Province**

Sistan-va-Balouchestan

**Postal code**

9816743545

**Phone**

+98 915 149 1448

**Email**

reza.sanagoo@gmail.com

**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

**Study Protocol**

No - There is not a plan to make this available

**Statistical Analysis Plan**

No - There is not a plan to make this available

**Informed Consent Form**

No - There is not a plan to make this available

**Clinical Study Report**

Yes - There is a plan to make this available

**Analytic Code**

No - There is not a plan to make this available

**Data Dictionary**

Not applicable

**Title and more details about the data/document**

Information on the main outcome is shared

**When the data will become available and for how long**

Access started from 1403

**To whom data/document is available**

Supervisor, advisor and referees

**Under which criteria data/document could be used**

Checking the accuracy of the statistical data provided

**From where data/document is obtainable**

Contact the principal investigator through the  
university's research unit Email address:  
mollazehi1365@gmail.com Phone number: 09010795624

**What processes are involved for a request to access data/document**

Review of the presented research report Request to send  
data files through the researcher's email address or  
contact number Sending the data file by the researcher  
via email, research assistant system or internal social  
messaging

**Comments**